

IN THE CLAIMS:

Please cancel pending claims 28 to 85.

Please enter new claims 86 to 154.

86. (New) A method of determining the presence of anti-Factor VIII allo-antibodies capable of degrading Factor VIII in a mammal, which comprises :

- i) isolating the plasma from a sample of blood taken from said mammal,
- ii) isolating anti-Factor VIII allo-antibodies from said plasma ;
- iii) placing said anti-Factor VIII allo-antibodies in contact with Factor VIII for a period of time sufficient to permit any degradation of said Factor VIII by said anti-Factor VIII allo-antibodies ; and
- iv) determining, after said period of time, whether said Factor VIII has effectively been degraded by said anti-Factor VIII allo-antibodies.

87. (New) The method of claim 86, wherein in step ii), said anti-Factor VIII allo-antibodies are isolated from said plasma by combining them with said Factor VIII.

88. (New) The method of claim 87, wherein said Factor VIII is coupled to a matrix.

89. (New) The method of claim 86, wherein in step ii), said anti-Factor VIII allo-antibodies are isolated by affinity chromatography.

90. (New) The method of claim 89, wherein in step ii), said affinity chromatography comprises the use of Factor VIII covalently coupled to a Sepharose matrix.

91. (New) The method of claim 90, wherein said Sepharose matrix is activated with cyanogen bromide.

92. (New) The method of claim 86, wherein in step iii), said Factor VIII is labelled with a labelling agent.

93. (New) The method of claim 92, wherein said labelling agent is a radio-labelling agent.

94. (New) The method of claim 93, wherein said radio-labelling agent is ¹²⁵I.

95. (New) The method of claim 86, wherein in step iii), said Factor VIII is placed in contact with the anti-Factor VIII allo-antibodies for a period of time of between about 0.5 and about 30 hours, at a temperature of about 15 to about 40°C.

96. (New) The method of claim 86, wherein in step iii), said Factor VIII is placed in contact with the anti-Factor VIII allo-antibodies for a period of time of about 10 hours, at a temperature of about 15 to about 40°C.

97. (New) The method of claim 86, wherein in step iii), said Factor VIII is placed in contact with the anti-Factor VIII allo-antibodies for a period of time of between about 0.5 and about 30 hours, at a temperature of 38°C.

98. (New) The method of claim 86, wherein in step iii), said Factor VIII is placed in contact with the anti-Factor VIII allo-antibodies for a period of time of about 10 hours, at a temperature of 38°C.

99. (New) The method of claim 86, wherein step iv) is carried out by a determination comprising a separation technique and a visualisation technique.

100. (New) The method of claim 99, wherein said separation technique is selected from the group consisting of gel electrophoresis, and gel filtration.

101. (New) The method of claim 100, wherein said gel electrophoresis is SDS PAGE.

102. (New) The method of claim 100, wherein said gel filtration is fast protein liquid chromatography gel filtration.

103. (New) The method of claim 100, wherein said visualisation technique is autoradiography.

104. (New) The method of claim 86, which further comprises :

v) characterising the site(s) in said Factor VIII molecule cleaved by said anti-Factor VIII allo-antibodies.

105. (New) The method of claim 104, wherein said characterisation is carried out by placing said Factor VIII in contact with said anti-Factor VIII allo-antibodies capable of degrading Factor VIII, separating and then sequencing the fragments of Factor VIII resulting therefrom.

106. (New) The method of claim 105, wherein said separation is carried out using a technique such as gel electrophoresis.

107. (New) The method of claim 106, wherein said separation is SDS PAGE.

108. (New) The method of claim 105, wherein said sequencing is carried out using a technique such as N-terminal sequencing.

109. (New) The method of claim 108, wherein said sequencing carried out using a technique such as N-terminal sequencing is by using an automatic protein microsequencer.

110. (New) The method of claim 104, wherein said sequencing locates scissile bonds : Arg³⁷²-Ser³⁷³, located between the A1 and A2 domains, Tyr¹⁶⁰-Asp¹⁶¹, located on the N-terminus of the A3 domain, and Glu¹⁷⁹⁴-Asp¹⁷⁹⁵ located within the A3 domain of the Factor VIII molecule.

111. (New) An amino acid sequence :

Ser Val Ala Lys Lys His Pro .

112. (New) An amino acid sequence :

Asp Glu Asp Glu Asn Gln Ser .

113. (New) An amino acid sequence :

Asp Gln Arg Gln Gly Ala Glu .

114. (New) A peptide or non-peptide analogue of an amino acid sequence of claim 111, which is capable of inhibiting any site in the Factor VIII molecule which is susceptible to being lysed by an anti-Factor VIII allo-antibody.

115. (New) A peptide or non-peptide analogue of an amino acid sequence of claim 112, which is capable of inhibiting any site in the Factor VIII molecule which is susceptible to being lysed by an anti-Factor VIII allo-antibody.

116. (New) A peptide or non-peptide analogue of an amino acid sequence of claim 113, which is capable of inhibiting any site in the Factor VIII molecule which is susceptible to being lysed by an anti-Factor VIII allo-antibody.

117. (New) A method of neutralising catalytic anti-Factor VIII allo-antibodies comprising using an anti-Factor VIII allo-antibody-catalysed Factor VIII degradation inhibitor.

118. (New) The method of claim 117, wherein said inhibitor comprises a protease inhibitor.

119. (New) The method of claim 118, wherein said protease inhibitor is 4-(2-aminoethyl)benzenesulphonyl fluoride hydrochloride.

120. (New) The method of claim 117, wherein said inhibitor inhibits cleavage of the scissile bonds : Arg³⁷²-Ser³⁷³, located between the A1 and A2 domains, Tyr¹⁶⁸⁰-Asp¹⁶⁸¹, located on the N-terminus of the A3 domain, and Glu¹⁷⁹⁴-Asp¹⁷⁹⁵ located within the A3 domain of the Factor VIII molecule.

121. (New) The method of claim 117, wherein said inhibitor comprises a peptide or non-peptide analogue of the amino acid sequence :

Ser Val Ala Lys Lys His Pro .

122. (New) The method of claim 117, wherein said inhibitor comprises a peptide or non-peptide analogue of the amino acid sequence :

Asp Glu Asp Glu Asn Gln Ser .

123. (New) The method of claim 117, wherein said inhibitor comprises a peptide or non-peptide analogue of the amino acid sequence :

Asp Gln Arg Gln Gly Ala Glu .

124. (New) A pharmaceutical composition which comprises a pharmaceutically effective amount of a pharmaceutically active ingredient selected from the group consisting of an anti-Factor VIII allo-antibody capable of degrading Factor VIII, and a pharmaceutically acceptable salt thereof, in a pharmaceutically acceptable excipient, vehicle or carrier.

125. (New) The pharmaceutical composition of claim 124, wherein said anti-Factor VIII allo-antibody capable of degrading Factor VIII is as obtainable from the method of claim 86.

126. (New) A method of therapeutic treatment of a mammal suffering from a pathology resulting from abnormal level of Factor VIII in the blood thereof, wherein a therapeutically effective amount of a pharmaceutically active ingredient selected from the group consisting of at least one anti-Factor VIII allo-antibody capable of degrading Factor VIII, and a

pharmaceutically acceptable salt thereof, in a pharmaceutically acceptable excipient, vehicle or carrier, is administered to said mammal.

127. (New) The method of claim 126, wherein said pathology results from the presence of an excess of Factor VIII in the blood thereof.

128. (New) The method of claim 127, wherein said pathology is of thrombotic nature.

129. (New) The method of claim 128, which is a therapeutic treatment of a mammal suffering from thrombosis.

130. (New) A pharmaceutical composition which comprises a pharmaceutically effective amount of a pharmaceutically active ingredient selected from the group consisting of a Factor VIII degradation inhibitor of claim 117, and a pharmaceutically acceptable salt thereof, in a pharmaceutically acceptable excipient, vehicle or carrier.

131. (New) A method of therapeutic treatment of a mammal suffering from a pathology resulting from the sub-physiological level of Factor VIII in the blood thereof, wherein a therapeutically effective amount of a pharmaceutically active ingredient selected from the group consisting of at least one Factor VIII degradation inhibitor, and a pharmaceutically acceptable salt thereof, is administered to said mammal.

132. (New) The method of claim 131, wherein said inhibitor comprises a protease inhibitor.

133. (New) The method of claim 132, wherein said protease inhibitor is 4-(2-aminoethyl)benzenesulphonyl fluoride hydrochloride.

134. (New) The method of claim 131, wherein said inhibitor inhibits cleavage of the scissile bonds : Arg³⁷²-Ser³⁷³, located between the A1 domains, Tyr¹⁶⁸⁰-Asp¹⁶⁸¹, located on the N-terminus of the A3 domain, and Glu¹⁷⁹⁴-Asp¹⁷⁹⁵ located within the A3 domain of the Factor VIII molecule.

135. (New) The method of claim 131, which comprises a peptide or non-peptide analogue of the amino acid sequence :

Ser Val Ala Lys Lys His Pro .

136. (New) The method of claim 131, which comprises a peptide or non-peptide analogue of the amino acid sequence :

Asp Glu Asp Glu Asn Gln Ser .

137. (New) The method of claim 131, which comprises a peptide or non-peptide analogue of the amino acid sequence :

Asp Gln Arg Gln Gly Ala Glu .

138. (New) The method of claim 131, wherein said pathology is of haemophilic nature.

139. (New) The method of claim 138, wherein said pathology of haemophilic nature is a disease involving coagulation defects due to Factor VIII insufficiency.

140. (New) The method of claim 138, which is a method of therapeutic treatment of a mammal suffering from haemophilia A.

141. (New) An anti-Factor VIII allo-antibody-catalysed Factor VIII degradation inhibitor, which comprises a peptide or non-peptide analogue of the amino acid sequence:

Ser Val Ala Lys Lys His Pro .

142. (New) An anti-Factor VIII allo-antibody-catalysed Factor VIII degradation inhibitor, which comprises a peptide or non-peptide analogue of the amino acid sequence:

Asp Glu Asp Glu Asn Gln Ser .

143. (New) An anti-Factor VIII allo-antibody-catalysed Factor VIII degradation inhibitor, which comprises a peptide or non-peptide analogue of the amino acid sequence :

Asp Gln Arg Gln Gly Ala Glu .

144. (New) A pharmaceutical composition, which comprises a pharmaceutically effective amount of an anti-Factor VIII allo-antibody-catalysed Factor VIII degradation inhibitor.

145. (New) The pharmaceutical composition of claim 144, which comprises a protease inhibitor.

146. (New) The pharmaceutical composition of claim 145, wherein said protease inhibitor is 4-(2-aminoethyl)benzenesulphonyl fluoride hydrochloride.

147. (New) The pharmaceutical composition of claim 144, wherein said inhibitor inhibits cleavage of the scissile bonds : Arg³⁷²-Ser³⁷³, located between the A1 domains, Tyr¹⁶⁸⁰-Asp¹⁶⁸¹, located on the N-terminus of the A3 domain, and Glu¹⁷⁹⁴-Asp¹⁷⁹⁵ located within the A3 domain of the Factor VIII molecule.

148. (New) The pharmaceutical composition of claim 144, which comprises a peptide or non-peptide analogue of the amino acid sequence :

Ser Val Ala Lys Lys His Pro .

149. (New) The pharmaceutical composition of claim 144, which comprises a peptide or non-peptide analogue of the amino acid sequence :

Asp Glu Asp Glu Asn Gln Ser .

150. (New) The pharmaceutical composition of claim 144, which comprises a peptide or non-peptide analogue of the amino acid sequence :

Asp Gln Arg Gln Gly Ala Glu .

151. (New) An anti-Factor VIII allo-antibody, which has a catalytic activity capable of catalysing degradation of Factor VIII.

152. (New) An anti-Factor VIII allo-antibody which is obtainable by the method of claim 86.

153. (New) The anti-Factor VIII allo-antibody of claim 151, which cleaves the following scissile bonds in the Factor VIII molecule: Arg³⁷²-Ser³⁷³, located between the A1 and A2 domains, Tyr¹⁶⁸⁰-Asp¹⁶⁸¹, located on the N-terminus of the A3 domain, and Glu¹⁷⁹⁴-Asp¹⁷⁹⁵ located within the A3 domain of the Factor VIII molecule.

154. (New) The anti-Factor VIII allo-antibody of claim 152, which cleaves the following scissile bonds in the Factor VIII molecule: Arg³⁷²-Ser³⁷³, located between the A1 and A2 domains, Tyr¹⁶⁸⁰-Asp¹⁶⁸¹, located on the N-terminus of the A3 domain, and Glu¹⁷⁹⁴-Asp¹⁷⁹⁵ located within the A3 domain of the Factor VIII molecule.

REMARKS

Pending claims 28 to 85 have been cancelled and new claims 86 to 154 have been added in place thereof.